

Check vacuum lines

Check all vacuum lines for controlling EGR and automatic transmission according to the vacuum line diagram for correct connection and leaks. Clean orifice (62) at vacuum supply point, if required.

Check if black vent lines from vacuum control valve (65) and from electric switchover valve (81) to passenger compartment are obstructed.

Check thermo-vacuum valve 17 °C (36, color code blue)

Pull white/brown vacuum line from angled connection of thermo-vacuum valve (36).

Pull white/purple/brown vacuum line from EGR valve and blow through the line.

If you can not blow through the line, replace the thermo-vacuum valve.

Check electric switchover valve (81)

Place hand on switchover valve and run engine speed up to approx. 1300 rpm. The switchover valve should then noticeably switch.

If it does not switch, check electric wiring and components according to wiring diagram. Replace defective parts, if required.

If it does switch, pull off vacuum line (arrow) and check for vacuum. If there is no vacuum, replace switchover valve.

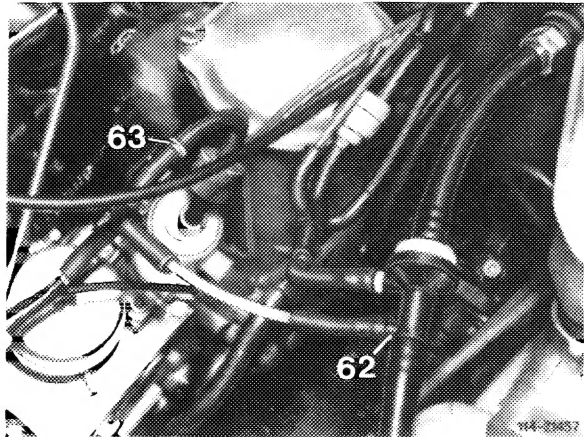


Fig. 37

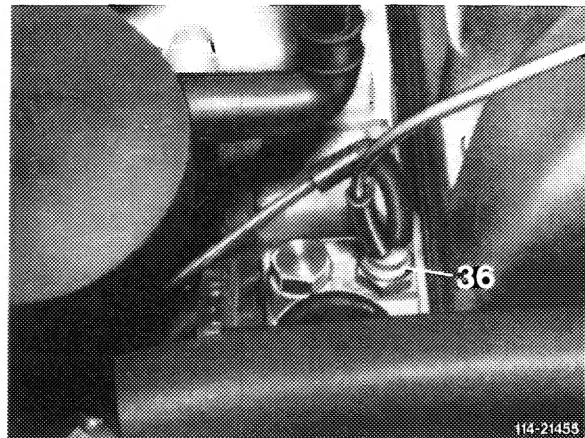


Fig. 38

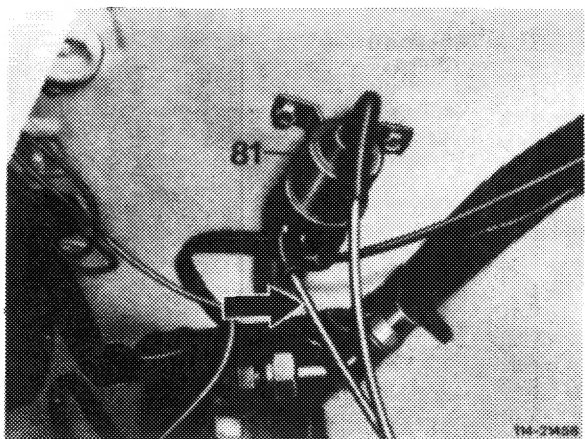


Fig. 39

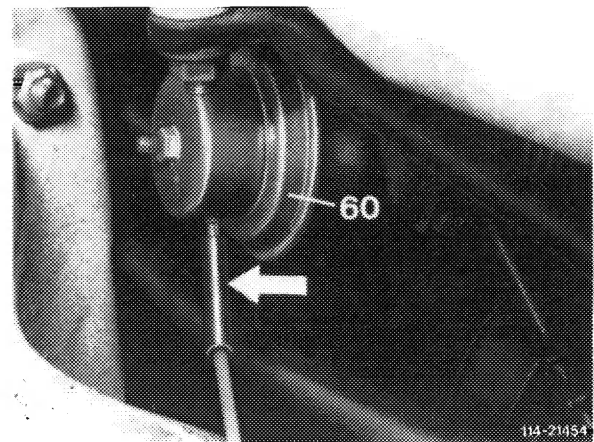
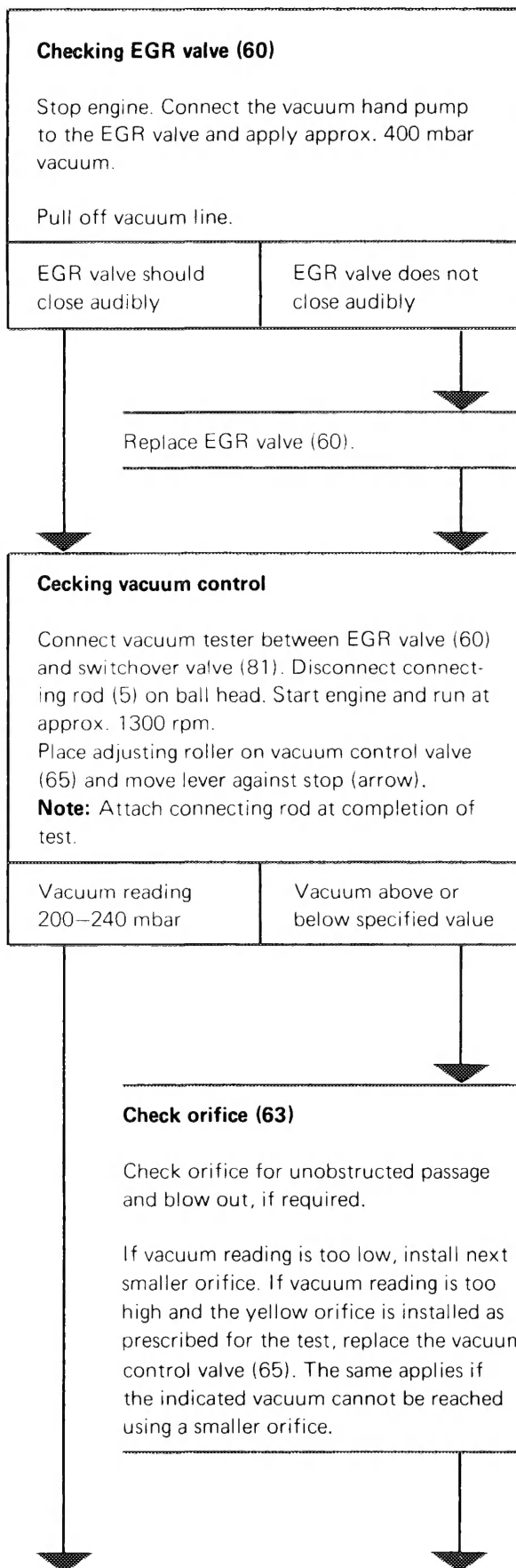


Fig. 40

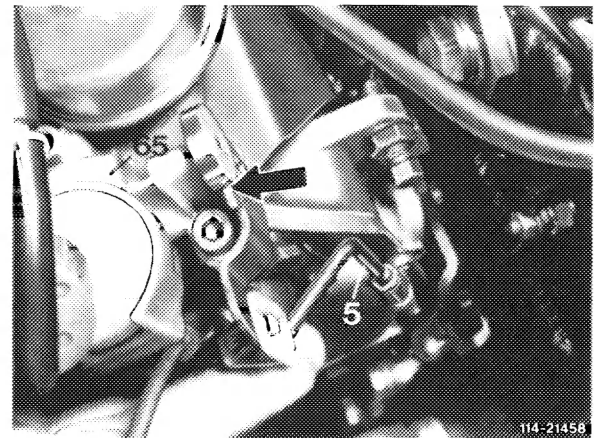


Fig. 41

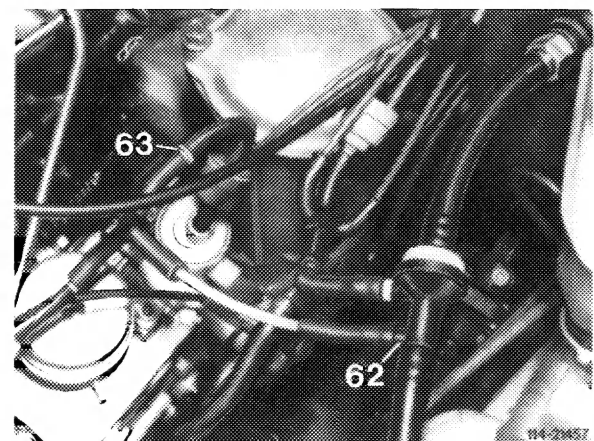


Fig. 42

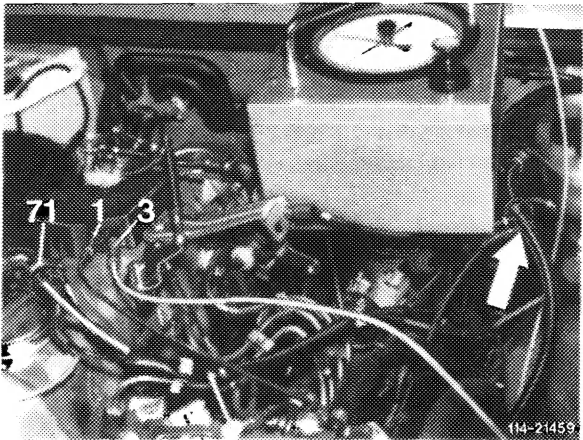
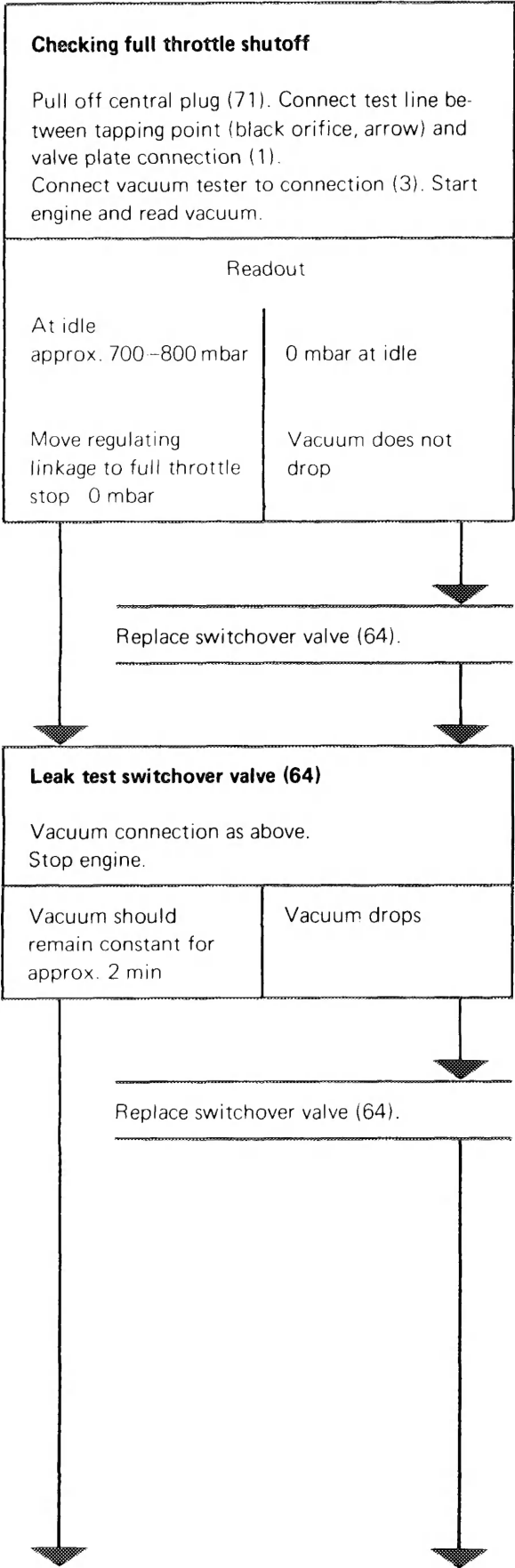


Fig. 43

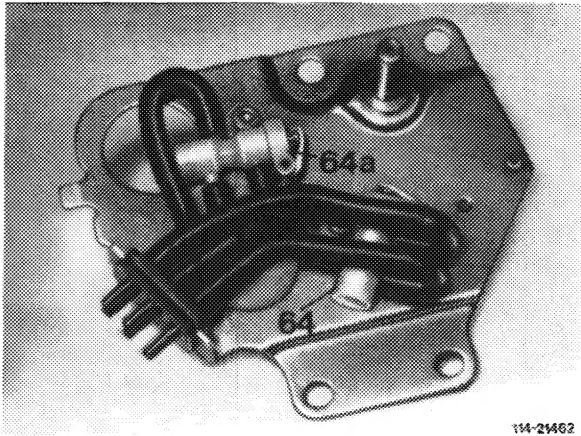


Fig. 44 Automatic transmission

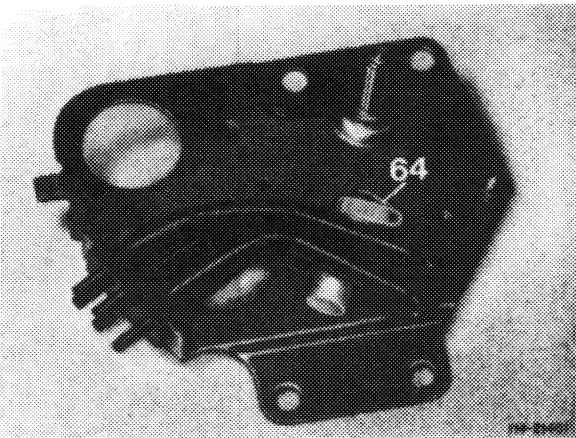


Fig. 45 Manual transmission

Checking vehicle speed shutoff

Connect vacuum tester between EGR valve (60) and switchover valve (81).
 Operate vehicle on dynamometer or road (not at full throttle).
 Read vacuum.

Readout

Speed:
 Below approx.
 73 ± 8 km/h
 Vacuum present

Above approx.
 73 ± 8 km/h
 0 mbar

Vacuum does not
 drop

Check electric operation of switchover valve (81). For this purpose, connect multimeter to plug (arrow) of switchover valve and drive vehicle.

If voltage (approx. 12 V) is present at a speed above approx. 73 ± 8 km/h, check electric wiring and components according to wiring diagram. Replace defective parts, if required.

If there is no voltage, replace switchover valve.

End of test

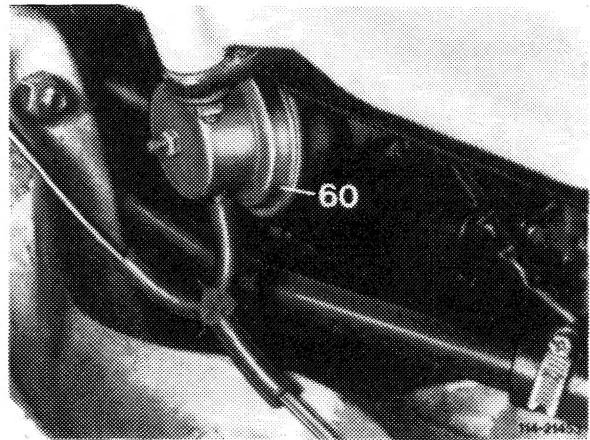


Fig. 46

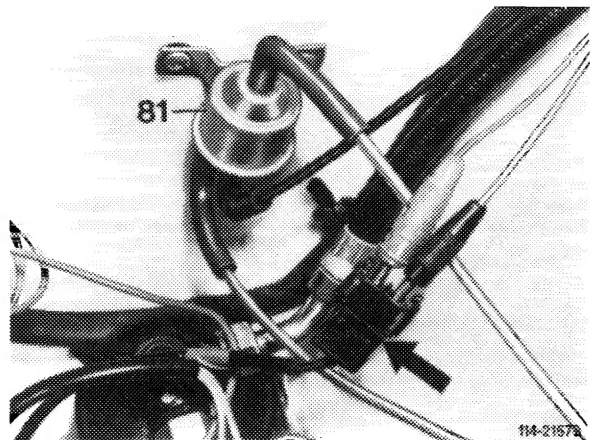
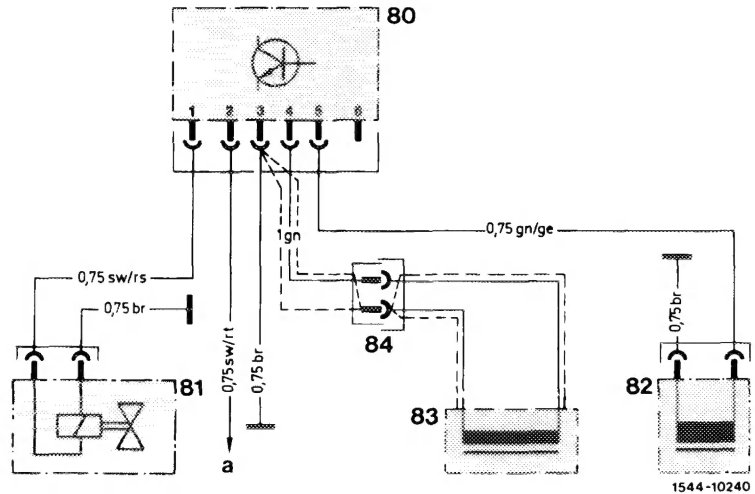


Fig. 47

Electric wiring diagram, EGR

Fig. 48

- 80 Control unit
 81 Switchover valve, electric
 82 Impulse transmitter, speedometer
 83 TDC transmitter
 84 Coupling TDC transmitter
 a = terminal 15, fuse 14

**Throttle control linkage on engine**

Additional throttle linkage components are required for controlling EGR.

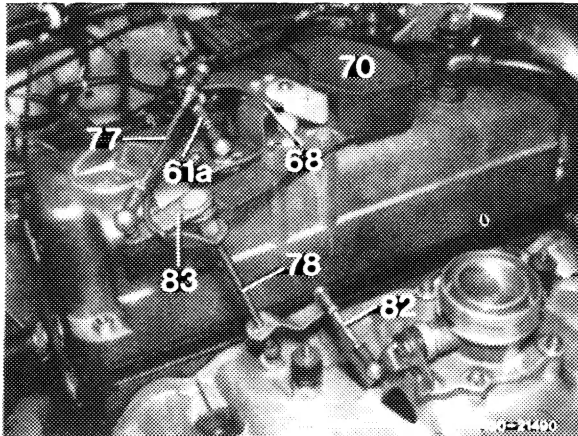


Fig. 49

Throttle control linkage on chassis

A spring washer and a graphite washer with copper mesh are installed instead of the plastic ring (arrows).

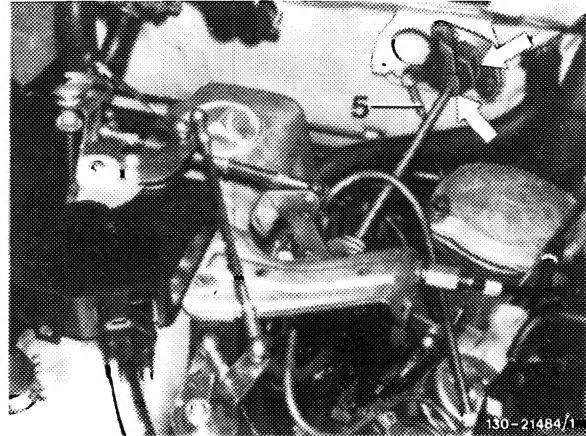


Fig. 50

Throttle control linkage adjustment**Length of control rods**

Connecting rod (82), throttle valve	94 mm
Telescoping rod (60) in extended condition	154 mm
Pull rod (61)	137 mm
Spring loaded telescoping rod (61a), manual transmission	154 mm
Push rod (5)	186 mm
Pull rod (77)*	186 mm
Push rod (41)*	184 mm

*) Basic adjustment

Special tool (spare part)

Adjusting sleeve

180 072 03 93

Throttle control linkage on engine

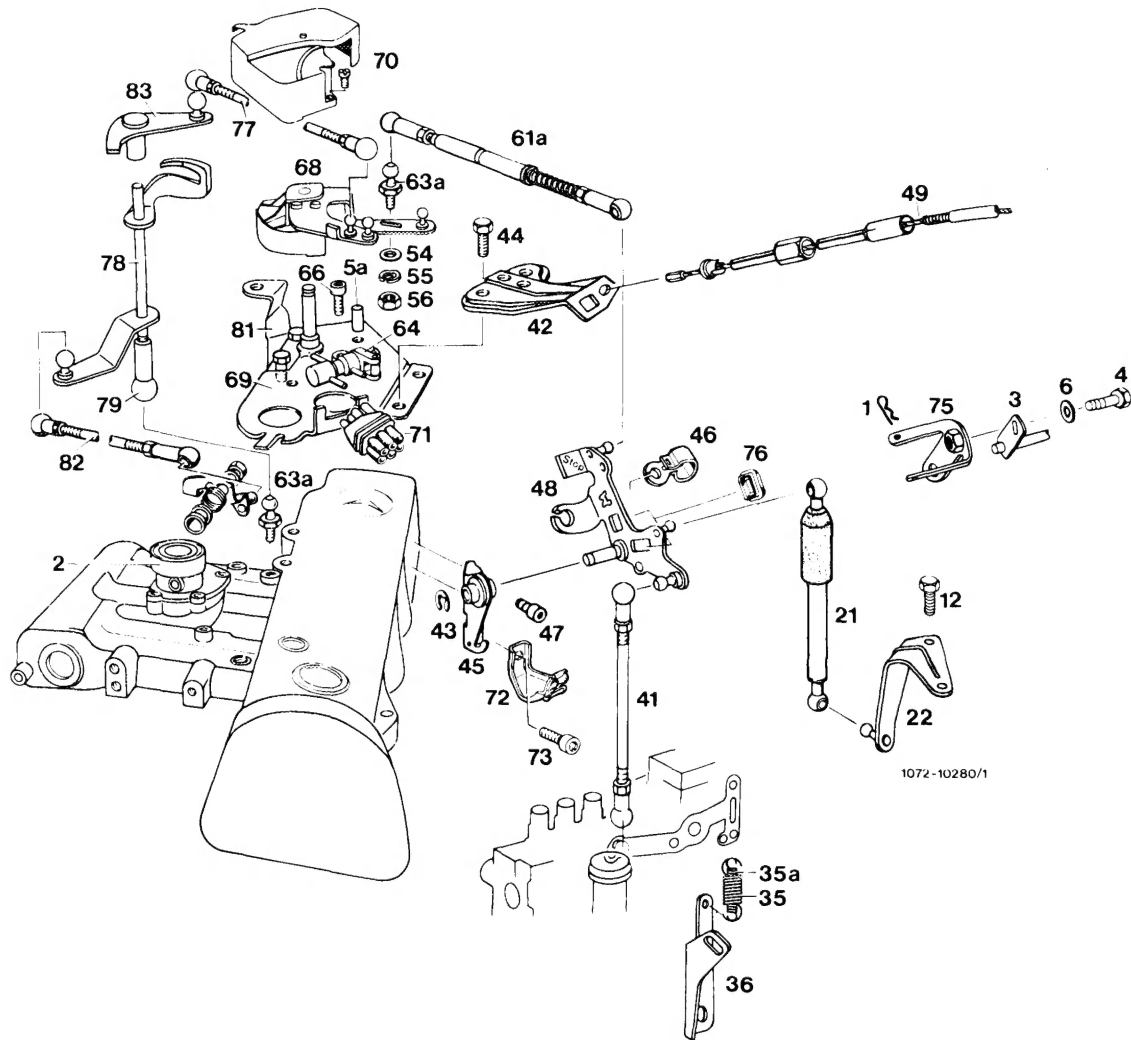


Fig. 51 Vehicle with manual transmission

- | | | |
|----------------------------------|-----------------------------------|---|
| 1 Safety clip | 43 Retaining ring | 71 Central plug |
| 2 Throttle valve housing (EGR) | 44 Hex. head screw | 72 Holder |
| 3 Longitudinal control shaft | 45 Bearing | 73 Hex. socket head screw |
| 4 Adjusting screw | 46 Special form spring | 75 Drive lever |
| 5a Stop bolt | 47 Hex. socket head screw | 76 Plastic bushing |
| 6 Washer | 48 Angle lever | 77 Pull rod |
| 12 Hex. head screw | 49 Idle speed adjustment cable | 78 Shaft |
| 21 Damper | 61a Spring-loaded telescoping rod | 79 Ball socket |
| 22 Holder | 63a Ball head | 81 Shaft holder |
| 35 Compression spring, external | 64 Switchover valve, mechanical | 82 Connecting rod, throttle valve housing |
| 35a Compression spring, internal | 68 Lever with cam | 83 Drag lever |
| 41 Push rod | 69 Valve mounting plate | |
| 42 Holder | 70 Cap | |

Throttle control linkage on engine

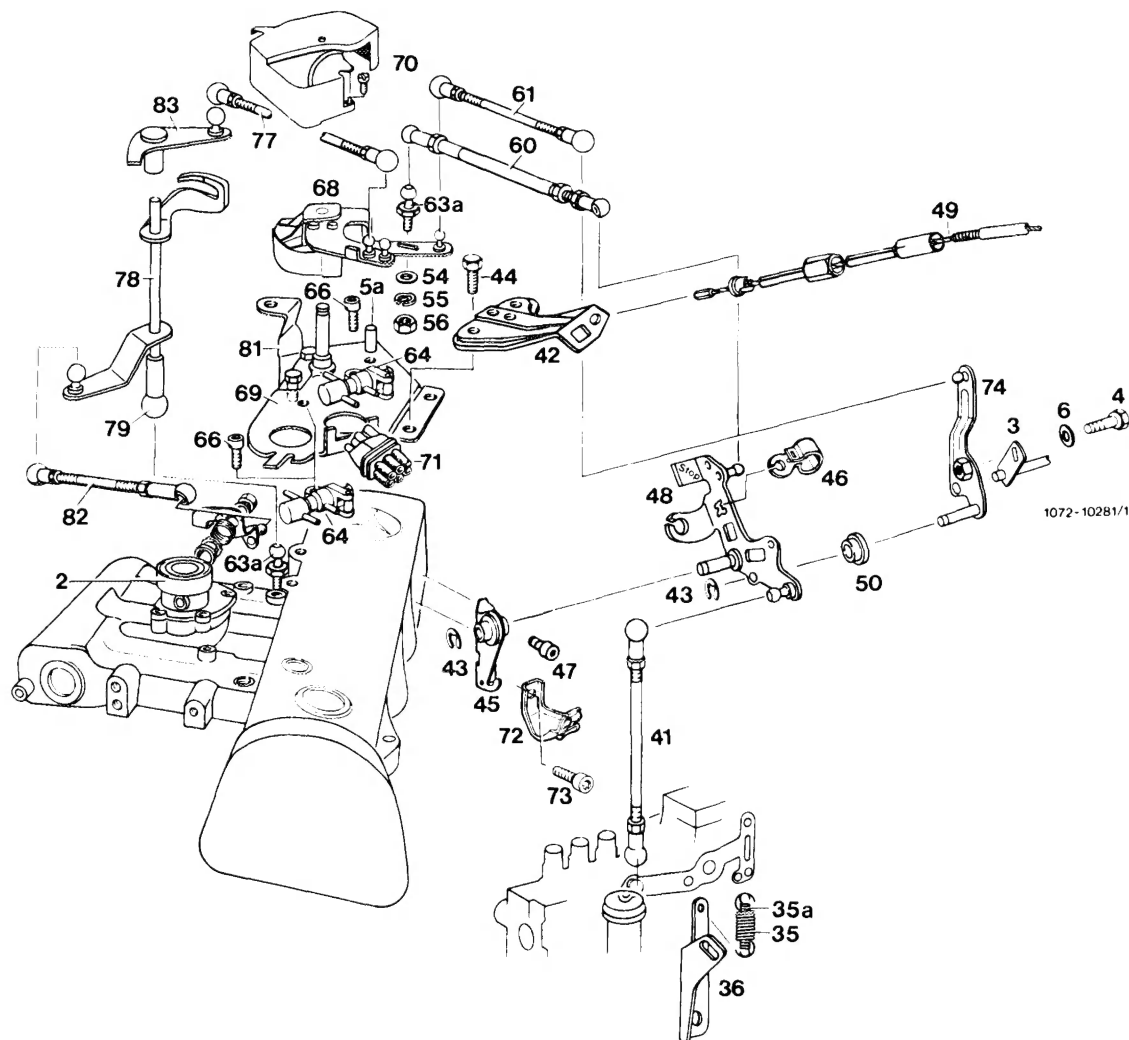


Fig. 52 Vehicles with automatic transmission

- | | | |
|--------------------------------|---------------------------------|---|
| 2 Throttle valve housing (EGR) | 48 Angle lever | 71 Central plug |
| 3 Longitudinal control shaft | 49 Idle speed adjustment cable | 72 Holder |
| 4 Adjusting screw | 50 Plastic bushing | 73 Hex. socket head screw |
| 5a Stop bolt | 60 Telescoping rod | 74 Guide lever |
| 6 Washer | 61 Pull rod | 77 Pull rod |
| 41 Push rod | 62 Hex. head screw | 78 Shaft |
| 42 Holder | 63a Ball head | 79 Ball socket |
| 43 Retaining ring | 64 Switchover valve, mechanical | 81 Shaft holder |
| 44 Hex. head screw | 66 Hex. socket head screw | 82 Connecting rod, throttle valve housing |
| 45 Bearing | 68 Lever with cam | 83 Drag lever |
| 46 Special form spring | 69 Valve mounting plate | |
| 47 Hex. socket head screw | 70 Cap | |

Chassis regulation

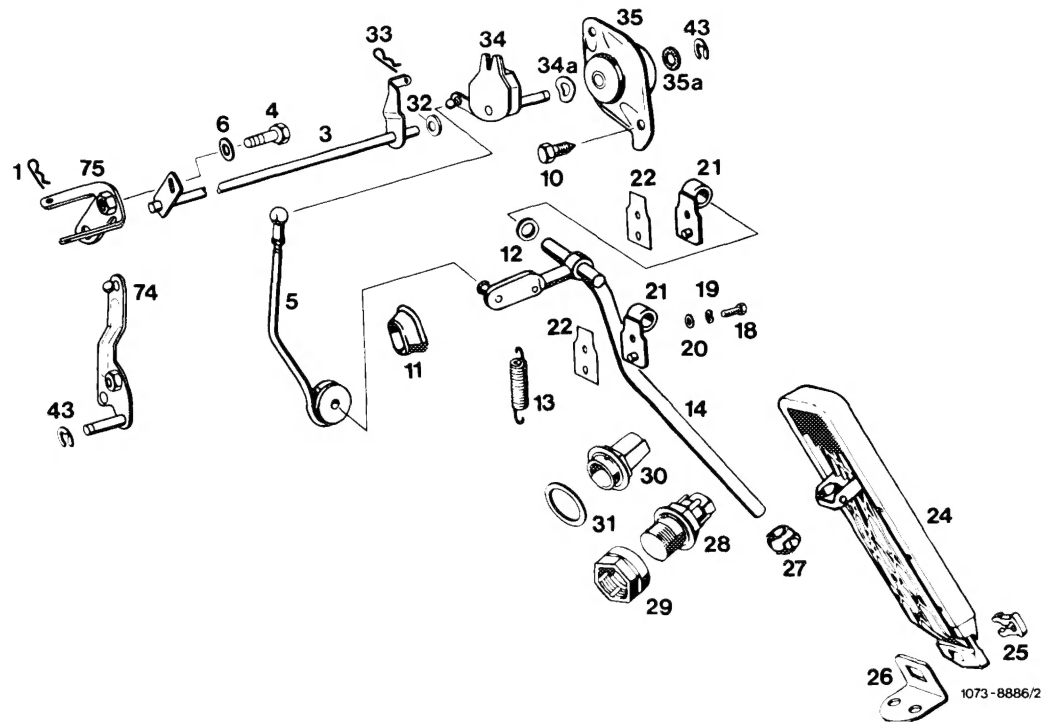


Fig. 53

- | | | |
|------------------------------------|---|--|
| 1 Safety clip, manual transmission | 20 Washer | 34 Control lever with damper |
| 3 Longitudinal control shaft | 21 Bearing | 34a Wave washer |
| 4 Adjusting screw | 22 Gasket | 35 Bearing holder |
| 5 Push rod | 24 Accelerator pedal | 35a Graphite washer with copper mesh |
| 6 Washer | 25 Clip | 43 Safety clip |
| 10 Screw | 26 Mounting bracket | 74 Guide lever, automatic transmission |
| 11 Rubber grommet | 27 Swivel joint | 75 Drive lever, manual transmission |
| 12 Plastic spacing ring | 28 Kickdown switch, autom. transmission | |
| 13 Return spring | 29 Adjusting nut, autom. transmission | |
| 14 Accelerator lever | 30 Full throttle stop | |
| 18 Hex. head screw | 31 Washer | |
| 19 Wave washer | 33 Safety clip | |

Adjustment

- 1 Check control linkage for binding and distortion. Replace damaged parts, if any.
- 2 Disconnect spring-loaded telescoping rod (23) (cruise control) or connecting rod (22) and idle speed control cable.
- 3 Check whether control lever (1) of injection pump rests against idle speed stop (3).

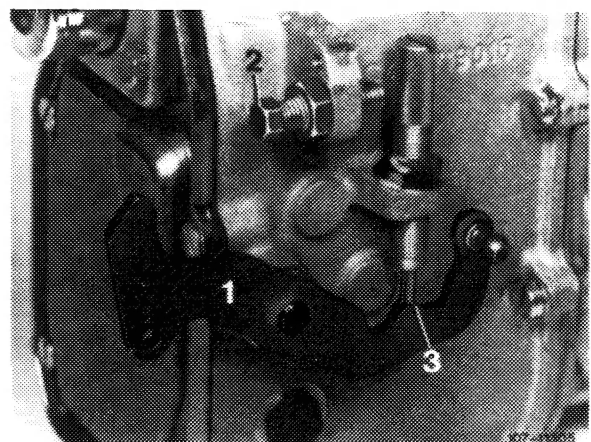


Fig. 54

- 1 Control lever
- 2 Full throttle stop
- 3 Idle speed stop

4 Check adjustment of connecting rod (5). For this purpose, move control lever (1) to full throttle stop (2), making sure that a clearance of less than 0.5 mm is available between lever (8) and stop (6). If required, adjust connecting rod (5) with adjustable ball head (4).

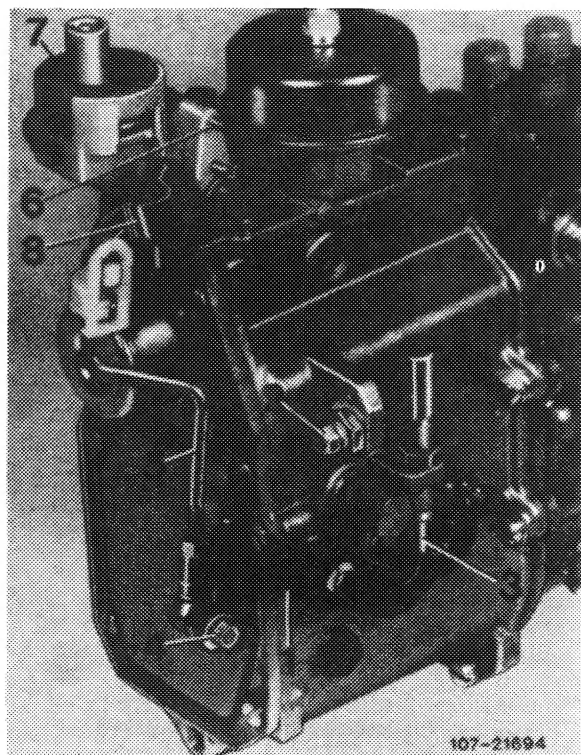


Fig. 55

- | | |
|--|--|
| 1 Control lever | 6 Full throttle stop on vacuum control valve |
| 2 Full throttle stop on injection pump | 7 Vacuum control valve |
| 3 Idle speed stop | 8 Actuating lever for vacuum control valve |
| 4 Adjusting ball head | |
| 5 Connecting rod | |

Vehicles with manual transmission

5 Check spring-loaded telescoping rod (61a) for 154 mm length and adjust, if required.

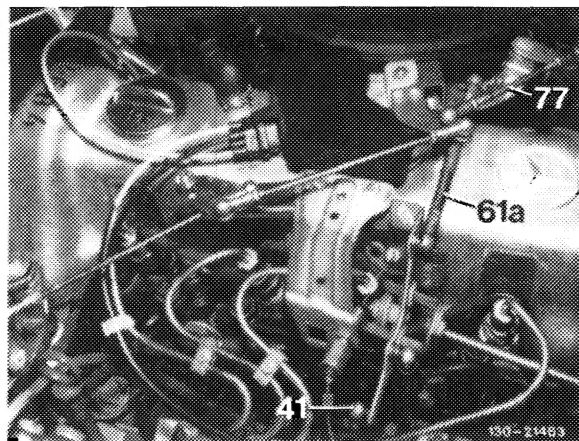


Fig. 56

41 Push rod

61a Spring loaded telescoping rod

6 Check whether lever with cam (68) is in alignment with mark (arrow) of cap (seen from above). Adjust push rod (41) if required.

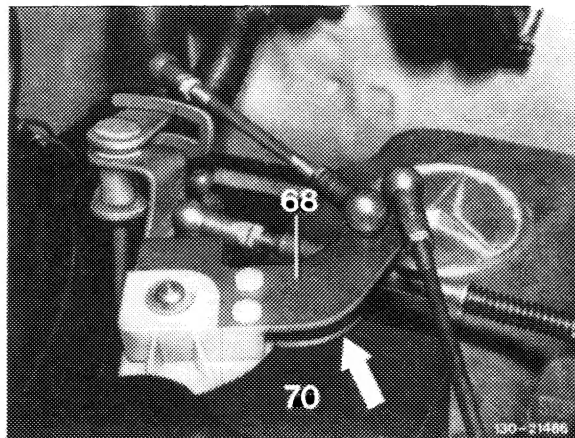


Fig. 57

68 Guide lever

70 Cap

7 Install adjusting sleeve (05) to stop bolt of valve mounting plate (69).

Pull angle lever (48) to full load, with control lever (1) on injection pump resting against full load stop (2). In this position, lever with cam (68) should rest against adjusting sleeve (05). If required, adjust adjustable ball head (68a) in slot.

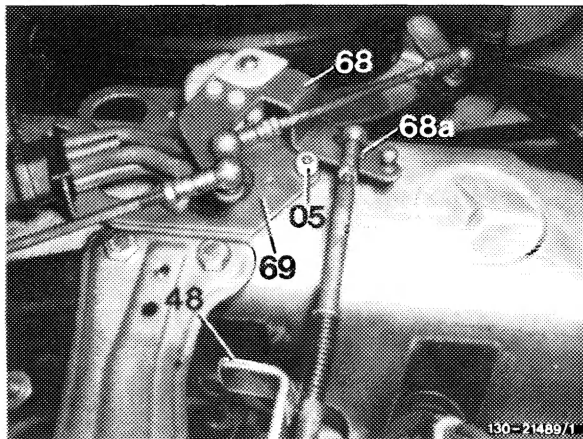


Fig. 58

05 Adjusting sleeve
48 Angle lever
68 Lever with cam
68a Adjustable ball head

9 Connect idle speed adjustment cable free of tension.

10 Check full throttle stop. With engine stopped, depress accelerator pedal from inside vehicle against stop. Control lever (1) should rest against full throttle stop (2) of injection pump. Adjust control linkage with adjusting screw (arrow) if required.

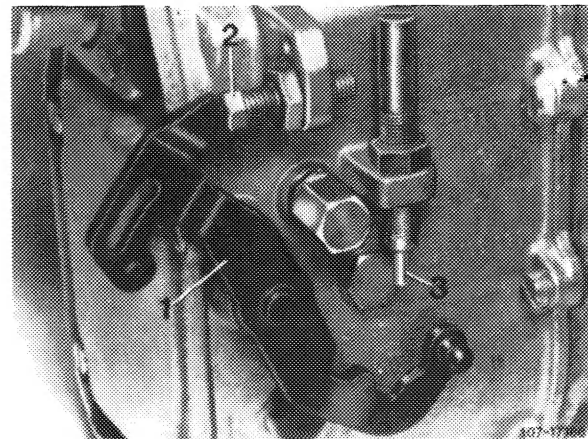


Fig. 60

1 Control lever
2 Full throttle stop
3 Idle speed stop

8 Set drag lever (83) to mark (arrow). Set pull rod (77) to mark and connect.

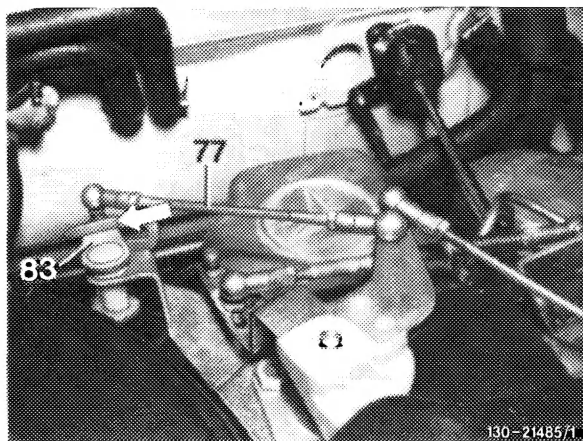


Fig. 59

83 Drag lever
77 Pull rod

11 If the full throttle or idle speed stop (2 or 3) is not attained with this adjusting screw, adjust push rod (5) from longitudinal control shaft to accelerator pedal to specified length measured from center of damping ring and connect.

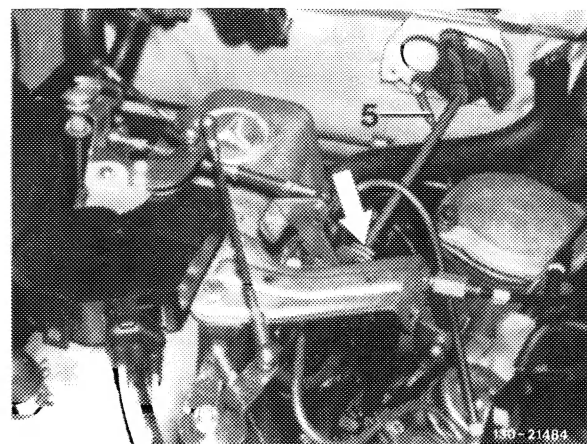


Fig. 61

Note: Throttle valve position: at idle = horizontal
full load = vertical

12 Check connecting rod (22) to cruise control for specified length of 178 mm and adjust, if required. Disconnect connecting rod (21) on actuator. Check if throttle control linkage is in idle speed position. Push lever of cruise control actuator clockwise to idle speed position. Check whether connecting rod (21) is 1 mm longer than the actual distance and adjust, if required. Attach connecting rod (21).

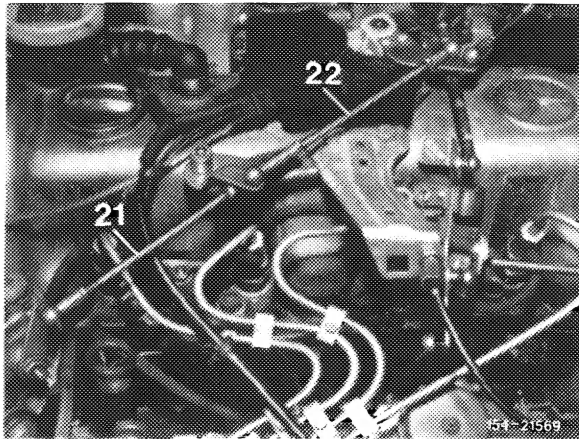


Fig. 62

21 Connecting rod 22 Connecting rod = 178 mm

Vehicle with automatic transmission

13 Check telescoping rod (60) and pull rod (61) for specified length and adjust, if required.

Note: Telescoping rod (60) 6 mm extended.

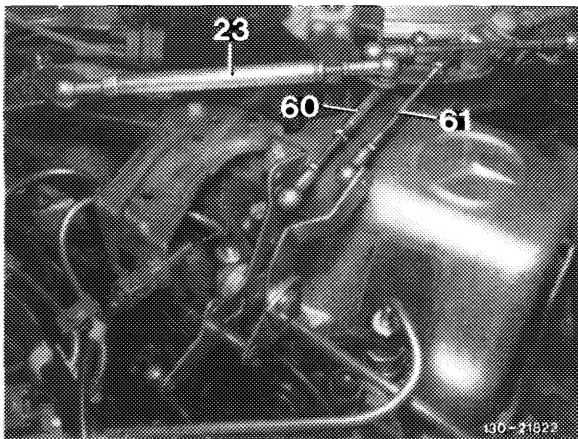


Fig. 63

14 Check whether lever with cam (68) is in alignment with mark (arrow) of cap (70) and adjust push rod (41), if required.

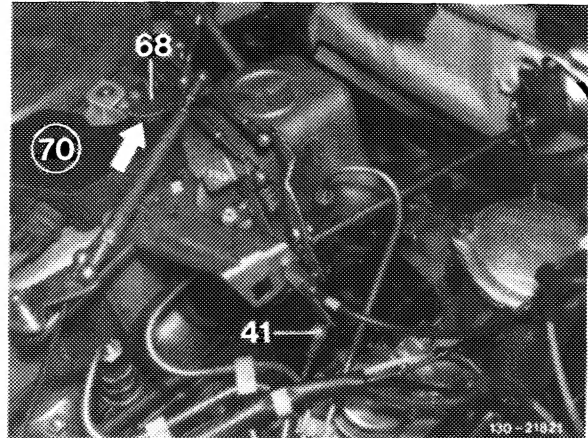


Fig. 64

41 Push rod 70 Cap
68 Lever with cam

15 Plug adjusting sleeve (05) on stop bolt of valve mounting plate (69). Pull guide lever (74) to full load, the control lever (1) of injection pump must rest against full load stop (2). In this position, lever with cam (68) should rest against adjusting sleeve (05), adjust adjustable ball head (68a) in slot, if required.

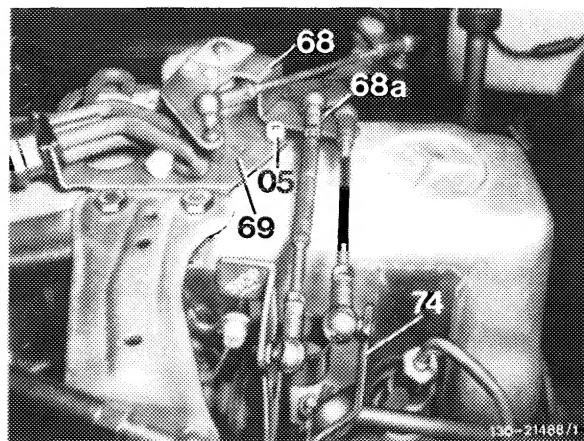


Fig. 65

05 Adjusting sleeve 68a Adjustable ball head
68 Lever with cam

16 Set drag lever (83) to mark (arrow). Set pull rod (77) to mark and connect.

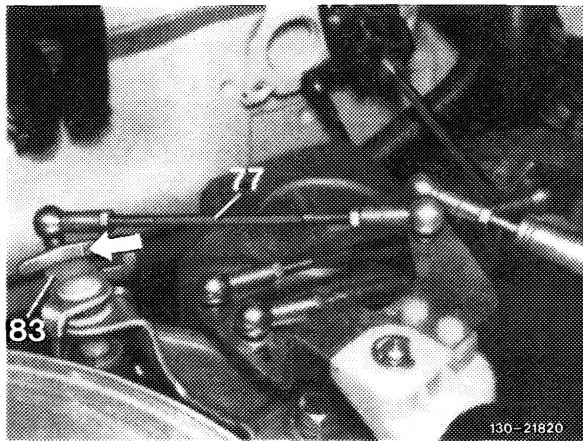


Fig. 66

77 Pull rod

83 Drag lever

17 Connect idle speed adjustment cable free of tension.

18 Check full throttle stop. With engine stopped, depress accelerator pedal from inside vehicle to kickdown switch. Control lever (1) should rest against full throttle stop (2) of injection pump. Adjust control rod with adjusting screw (arrow), if required.

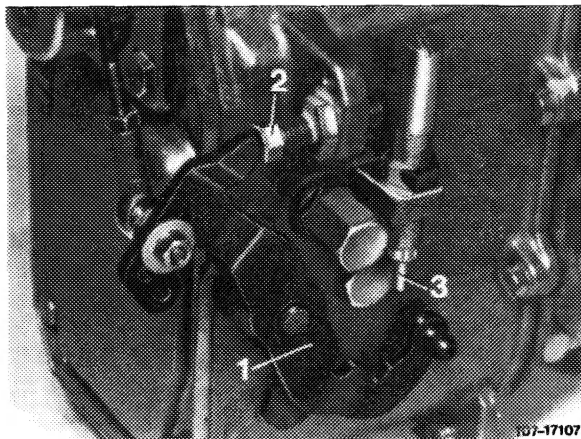


Fig. 67

1 Control lever

3 Idle speed stop

2 Full throttle stop

19 If full throttle or idle speed stop is not attained with this adjusting screw (arrow), adjust push rod (5) from longitudinal control shaft to accelerator pedal to specified length, measured from center of ball socket to center of damping ring and connect.

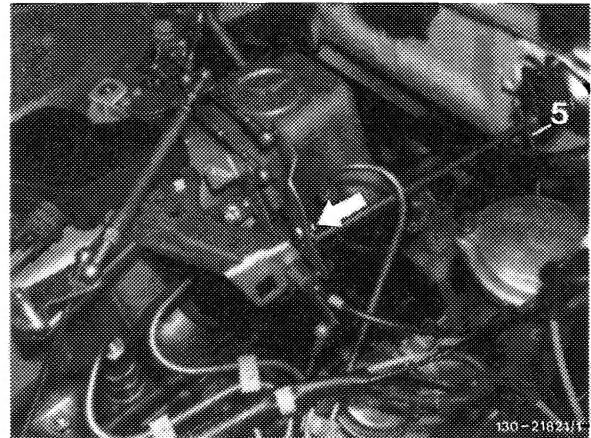


Fig. 68

20 Check spring-loaded telescoping rod (23) to cruise control for specified length (178 mm).

Disconnect connecting rod (21) on actuator.

Check if throttle control linkage is in idle speed position. Push lever of cruise control actuator clockwise to idle speed position.

Check whether connecting rod (21) is 1 mm longer than the actual distance and adjust, if required. Attach connecting rod (21).

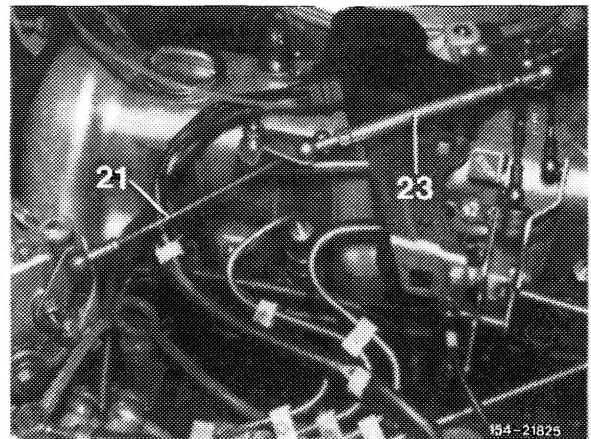


Fig. 69

21 Connecting rod

23 Spring loaded telescoping rod = 178 mm

